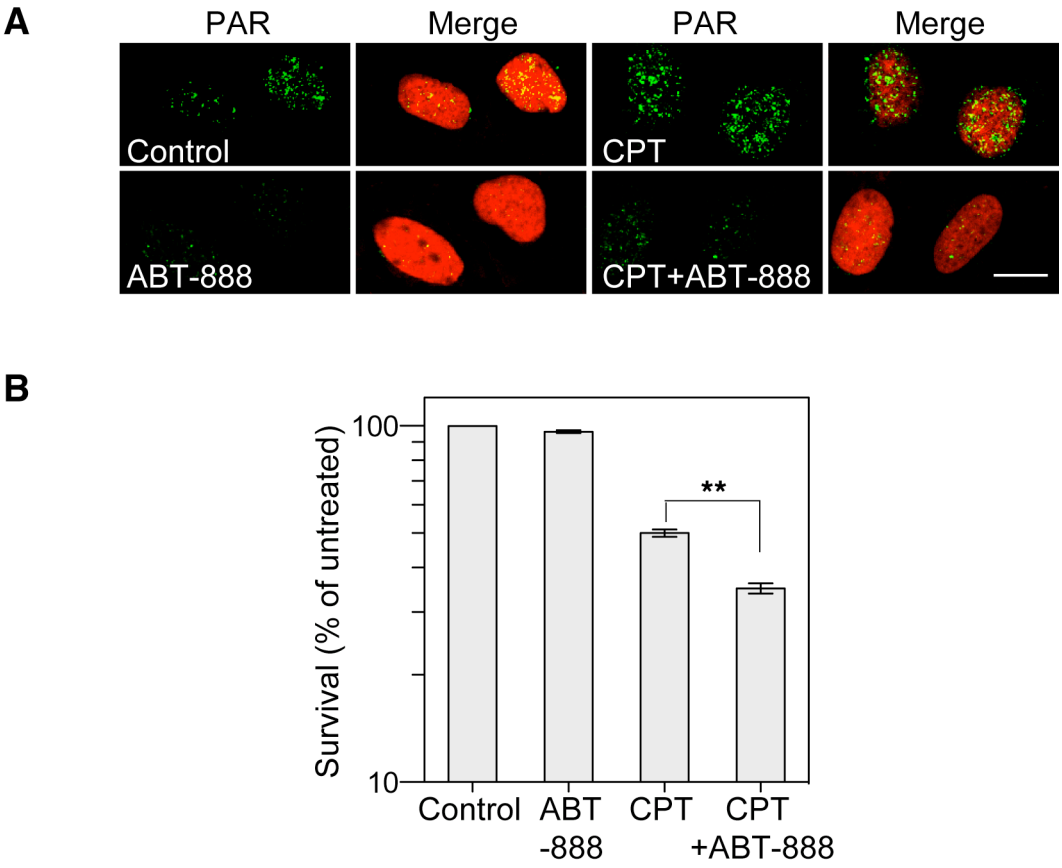
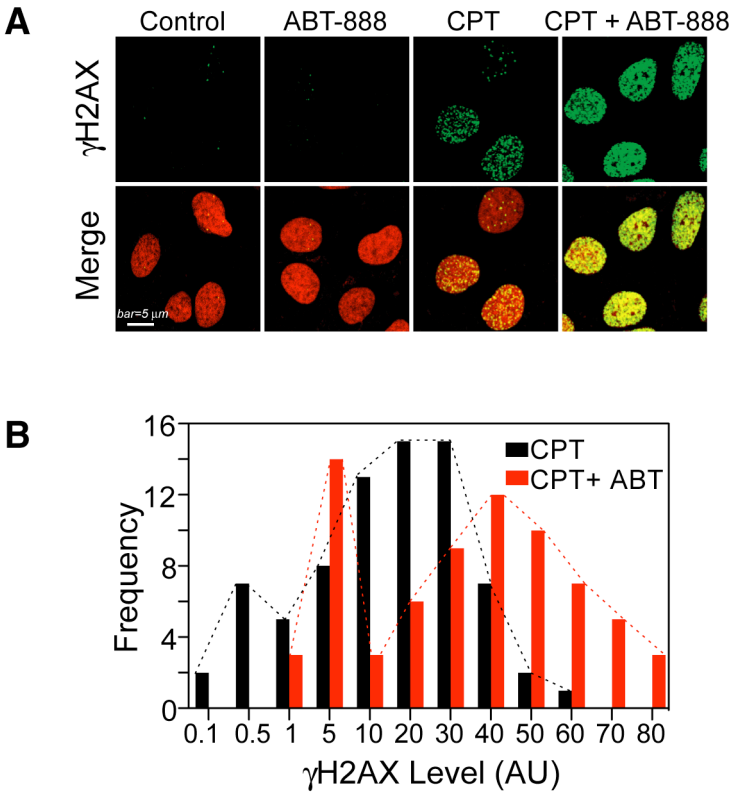
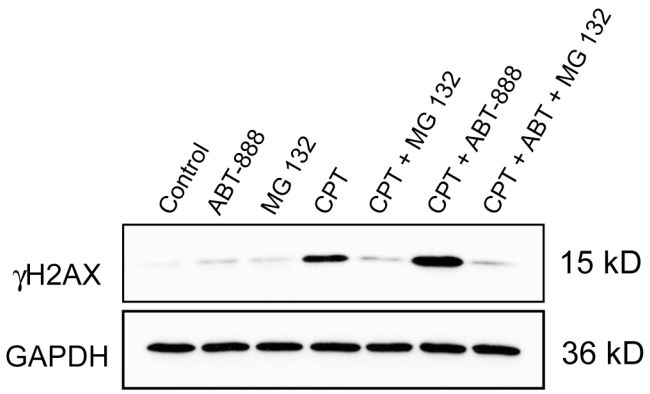


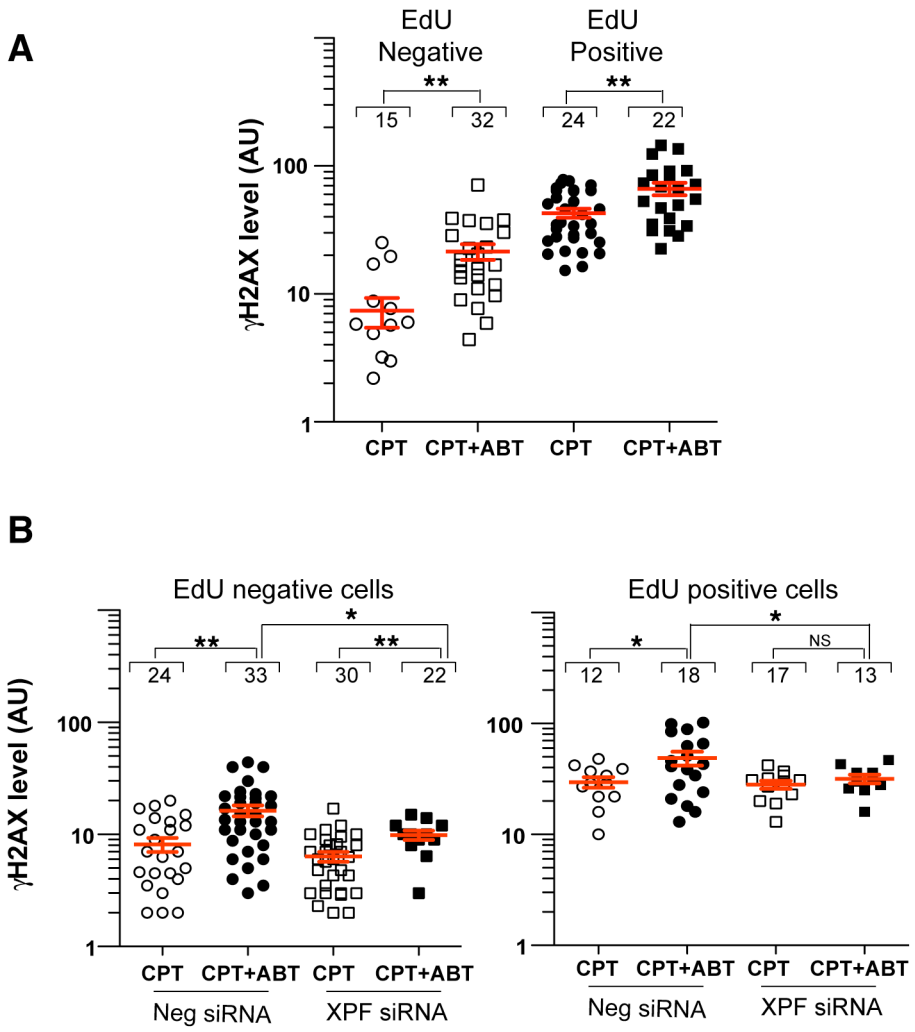
Supplemental Fig. 1. A. Fluorescence images of poly(ADP-ribose) (PAR) induction by CPT and suppression by ABT-888 in human osteosarcoma U2OS cells. Cells were treated with 1 μM CPT for 30 min in the absence or presence of ABT-888 (0.5 μM). Nuclei were labeled with PI (red) and PAR polymers are shown in green; Bar = 8 μm. **B**. Clonogenic assays. HT-29 Cells were treated with 1 μM CPT for 30 min in the absence or presence of ABT-888 (0.5 μM). Then drugs were washed away and cells were cultured for 10 days to allow colony formation. The survival fraction of untreated cells was defined as 100%. Data are shown as mean values ± S.D.(n = 3 independent experiments). Standard *t*-tests were used for statistical analyses; ***p<0.01*.



Supplemental Fig. 2. Induction of γH2AX by ABT-888 in CPT-treated cells. U2OS cells were treated with CPT (1 μM) for 30 min in the presence or absence of ABT-888 (0.5 μM). **A**. Representative confocal microscope images of γH2AX; **B.** Distribution of γH2AX levels analyzed through quantitative analysis of γH2AX signal cell by cell; Dotted curves link the edges of columns (black, CPT; red, CPT+ABT-888).



Supplemental Fig. 3. U2OS cells were pre-treated with the proteasome inhibitor MG-132 (10 μM for 2 h) before being exposed to CPT (1 μM) for 30 min in the presence or absence of ABT-888 (0.5 μM). γH2AX levels were detected by Western blotting.



Supplemental Fig. 4 Duplicate independent experiments for single cell analyses. **A**. U2OS cells were treated with CPT (1 μM) for 30 min in the presence or absence of ABT-888 (0.5 μM). **B**. 48 h after transfection with *XPF* siRNAs, U2OS cells were labeled with EdU and treated with CPT (1 μM) for 30 min in the absence or presence of ABT-888 (0.5 μM). Cells were fixed and stained for immunofluorescence assays. Scattered-dot plots were derived by analyzing the γH2AX level of individual cells in each experiment. Mean values ± S.E.M. are shown as red bars. Numbers above each cluster indicate the number of cells counted. Standard *t*-tests were used for statistical analyses ,** $p<0.01$; * $p<0.05$; *NS, no significant difference.*